DECLASSIFIED
Authority NND735022

File The Infantry Board

[redacted]

REPORT

of

The Infantry Board

[redacted]

No. 1490

MECHANISM, ELECTRICAL FIRING, T6 (FOR LAUNCHER, ROCKET, M-1).

Regraded Unclassified By Authority Of
Proc Bd Nr 3 OCAFF
By [signature] 20 Apr 54
CWO USA (Date)

FORT BENNING, GEORGIA

June 5, 1943

24725—Benning, Ga., 9-16-42—2,000

[redacted]

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IB-471.6 [redacted] June 5, 1943.

Subject: Mechanism, Electrical Firing, T6 (For Launcher, Rocket, M-1).

To: Chief of Ground Requirements Section, Army Ground Forces, Army War College, Washington, D. C.

1. The Infantry Board concurs in the Discussion and Conclusions contained in Sections VI and VII of the attached Report of Test.

2. It is the opinion of The Infantry Board that the subject devices are highly desirable because they completely eliminate the resupply of batteries which is a difficult problem in the field. In their present form the devices need two essential modifications, one, reduction of the trigger pull by insertion of a softer spring and the other the inclusion of a means of testing the entire electrical circuit. In addition, there should be some method of sealing the trigger handle at the top to prevent the entry of sand, dust or mud. The plastic grips are very malodorous and either wood or an odorless plastic should be substituted.

3. The Infantry Board recommends the immediate adoption of the subject mechanism, modified as indicated in paragraph 15 and 16, Report of Test, and illustrated in Appendices E and F.

For the President:

INGOMAR M. OSETH,
Colonel, Infantry,
Director.

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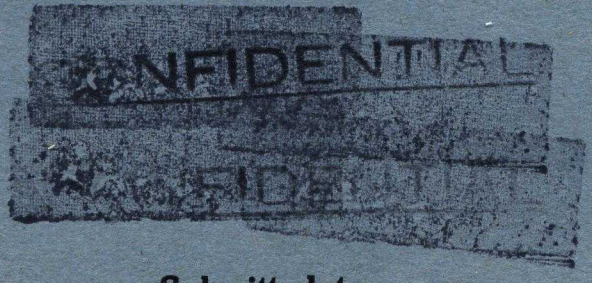
REPORT of TEST

MECHANISM, ELECTRICAL FIRING, T6
(FOR LAUNCHER, ROCKET, M-1).

TEST SECTION
THE INFANTRY BOARD
FORT BENNING, GEORGIA



Submitted to
THE INFANTRY BOARD

Copy No. 2 **Date** June 4, 1943.

26799 BENNING 1-28-43 500

DECLASSIFIED
Authority NND735022

TEST SECTION
THE INFANTRY BOARD
FORT BENNING, GEORGIA

[redacted]

JUNE 4, 1943.

[redacted]

SUBJECT: MECHANISM, ELECTRICAL FIRING, T6 (FOR LAUNCHER, ROCKET, M-1.)

TO: PRESIDENT, THE INFANTRY BOARD, FORT BENNING, GA.

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Authority NND735022

I AUTHORITY AND REFERENCES

1. Authority.

a. Letter, (file IB-471.6), The Infantry Board, May 11, 1943, marked "CONFIDENTIAL". (Appendix "A")

b. Letter, Office of the Chief of Ordnance, "attention SPOTS" May 3, 1943, with two (2) Inclosures, Marked "CONFIDENTIAL". (Appendix "B")

c. Letter, (file 471.6/9) (c) GNRQT - 11/4192) Ground Requirements Section, Headquarters, Army Ground Forces, May 26, 1943, with one (1) Inclosure, Marked "CONFIDENTIAL". (Appendix "C")

d. Letter, (file IB-471.6) The Infantry Board, June 1, 1943, Marked "CONFIDENTIAL". (Appendix "D")

2. Reference.

Infantry Board Report of Test Number 1407.

II PURPOSE OF TEST

3. a. The purpose is to conduct test of Mechanisms, Electrical firing, T6 for the Rocket Launcher M1 in order to determine:

(1) The feasibility of incorporating the subject items into the Rocket Launcher M1 as a field modification.

(2) The practicability of these items.

(3) Their reliability and functioning under field conditions, including water, dust and mud.

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(4) The desirability of their use on the old rocket launchers in the field and on those of future manufacture.

b. A further purpose of the test is to develop a satisfactory method for testing the entire electrical circuit in the Antitank rocket launcher M1.

III PERSONNEL

4. Major Lawrence Mitzen, Infantry, Test Section, The Infantry Board, conducted the tests and prepared this report.

a. The method for testing the electrical circuits of the Antitank rocket launcher M1 was designed and constructed by Major Lawrence Mitzen, Infantry, Test Section, The Infantry Board.

b. Photographs were taken by the Reproduction Plant, The Infantry School.

IV INTRODUCTORY INFORMATION AND DESCRIPTION OF PROJECT TESTED

5. Information.

a. The directive letters (Appendices "A" and "B") authorizing modification of the Antitank rocket launcher M1 by incorporation of the subject firing mechanisms were received on May 11, 1943. These directives did not authorize the initiation of detailed tests of the subject firing mechanisms.

b. The directive letters (Appendices "C" and "D") authorizing tests of the subject firing mechanisms were received on June 1, 1943. These directives also

[redacted]

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requested that a method of testing the entire electrical circuit of the Antitank rocket launcher be developed.

6. Description.

a. The subject firing mechanism consists essentially of a magneto assembly incorporated into a housing similar to that of the rear hand grip stock on the antitank rocket launcher M1. The magneto assembly consists of a permanent magnet constructed so that the two poles are rather close together thus providing a dense magnetic field between them. Between the two poles, a coil of wire is permanently fastened, through which passes a metal bar-like armature which in turn is actuated by the trigger. When sufficient pressure is applied to the trigger the armature will move between the poles with sufficient speed to create a disturbance in the magnetic field passing through the coil of wire. This disturbance will generate approximately 2 - 3 volts of electrical pressure and enough current to ignite the electrical squib within the antitank rocket. See Appendix "F" for installation instructions.

b. Six (6) of the subject firing mechanisms were received on May 6, 1943.

c. During the test program orders were received to suspend all firing of antitank rockets M6 and M7 until further orders.

V DETAILS OF TESTS AND RESULTS THEREFORM

7. Test No. 1.

a. Purpose: To record the physical characteristics of the subject firing mechanisms:

b. Method: By measuring, weighing, and photographing.

c. Results:

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(1) Dimensions: Overall

5-3/8 inches long by 2-1/2 inches wide and 1-1/2 inches thick.

(2) Weight:

1.17 pounds.

(3) Photographs:

See Plates Nos. 1, 2 and 3.

d. When installed on the Antitank Rocket Launcher M1 in lieu of the battery type firing method the weight of the launcher is reduced from 14.39 pounds to 14.10 pounds.

8. Test No. 2.

a. Purpose: To determine the operating conditions of the six (6) subject firing mechanisms when received for test.

b. Method:

(1) By squeezing the triggers on each firing mechanism when unpacked.

(2) By attaching electric squibs to each device and squeezing the triggers.

c. Results:

(1) Of the six (6) subject items only three (3) would function when the triggers were squeezed. By disassembling the defective items and examining them carefully the following was noted:

(a) In one of the devices the piece of metal soldered to the trigger and used to hold the trigger spring in position had worked loose. The soldering job was poorly done and the loose metal had worked down so as to prevent the trigger from tripping the armature.

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(b) In another device, one of the two metal arms used to apply pressure on the wire spring engaged in each end of the armature was found bent. This caused the wire spring to pull out of the hole in the armature and resulted in armature not tripping when the trigger was pulled.

(c) The cause of the defect in the third device was not definitely determined. The trouble appears to be in the amount of pressure transmitted by the trigger being insufficient to trip the armature. By pushing very lightly on the armature, while pressure is being maintained on the trigger, the armature will trip and fire a squib. Squeezing the trigger alone will not trip the armature.

(2) Though some of the devices did not function satisfactorily from a mechanical standpoint all six fired electric squibs whenever the armature was actuated.

9. Test No. 3.

a. Purpose: To determine the feasibility of incorporating the subject firing mechanisms into the antitank rocket launcher M1 as a field modification.

b. Method:

(1) Two (2) of the subject items were installed on the rocket launchers M1.

(2) The requirements for removing the battery method from the launcher and for installing the magneto type thereon were noted and recorded.

c. Results:

(1) The subject devices were easily installed on the rocket launchers.

(2) The following tools are necessary:

(a) A hack saw to saw off part of the metal grip also part of the trigger guard.

(b) A hand drill with a No. 8 metal drill to drill two holes.

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(c) A screwdriver for removing and replacing the hand grip stocks.

(d) A soldering iron with sufficient solder to fasten two wires.

(e) A small hammer to rivet the mechanism to the launcher.

Note: In order to fasten the mechanism to the launcher two small button head soft steel rivets, 3/16 inches in diameter, are required. These rivets were not furnished with the devices received for tests.

(3) It is believed that the above modifications can be made by personnel within the Infantry regiments with the tools normally carried by them in the field. This statement is based on the assumption that a diagram or drawing showing the necessary cutting and drilling will be furnished to the personnel making the modifications.

(4) Though not indicated by the drawing it is believed that the bulb used (6 - 8 volt) for testing the batteries should be changed when the magneto type firing mechanism is incorporated. See results of test No. 4.

(5) See Plates Nos. 2 and 3 for appearance when installed on the launcher M1.

10. Test No. 4.

a. Purpose: To determine the reliability and functioning of the subject devices.

b. Method:

(1) One of the devices was actuated 1300 times during a period of one (1) hour.

(2) In order to check the electrical output, a small flashlight bulb (2.5 volt) was connected so as to give a visual indication of the electrical output each time the device was actuated.

(3) At the completion of 1300 actuations, the device was installed on the launcher and eight rockets (4 M-6 and 4 M-7) were fired.

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c. Results:

(1) This device functioned 1300 times satisfactorily. Each time the device was actuated the bulb would light momentarily, indicating proper functioning of the magneto.

(2) It was noted that during the initial portion of the 1300 actuations the light bulb would light both when the trigger was squeezed and when it was released. After approximately 300 actuations the light bulb would not burn when the trigger was released. In testing one of the other devices it was noticed that the light would burn only when the trigger was squeezed.

(3) When installed on the launcher, the device that was actuated 1300 times, fired all eight rockets satisfactorily. While firing these rockets the trigger was squeezed very slowly, and the rockets were discharged as soon as armature was tripped.

(4) It was noticed that by attaching an external bulb (2.5 volt) to the contactor plunger on the launcher and actuating the firing mechanism a brighter light could be obtained if the bulb mounted in the stock of the launcher stock was removed. This bulb mounted in the stock, does not burn when the magneto type firing device is actuated, due to slow incandescence and a higher voltage rating (6-8 volts) of the filament. See results of test No. 9 for recommendations for circuit testing.

11. Test No. 5.

a. Purpose: To determine the effect of water on the mechanical and electrical functioning of the subject items.

b. Method:

(1) Two (2) of the subject items were completely immersed in slightly saline water for 36 hours.

(2) The devices were periodically checked (while submerged) by firing electric squibs.

(3) At the end of 36 hours each device was used to fire 4 electric squibs and then disassembled and examined carefully.

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c. Results:

(1) No apparent effect was noted in either of the two items at the end of 36 hours. Both devices fired electric squibs immediately and the mechanical operation was satisfactory.

(2) When disassembled no apparent effects in the construction, mechanical operation or electrical functioning was noted.

(3) The mechanisms and coils in both items were very wet.

12. Test No. 6.

a. Purpose: To determine the effect of high and low temperatures on the mechanical and electrical functioning of the subject firing mechanisms.

b. Method:

(1) One of the subject items was exposed to a temperature of plus 10 degrees F. for 24 hours.

(2) One of the subject items was exposed to a temperature of plus 140 to 190 degrees F. for 24 hours.

c. Results:

(1) No apparent effect was noted in the mechanical and electrical operation of the subject mechanism resulting from exposure to a temperature of plus 10 degrees F. for 24 hours. Four (4) electric squibs were fired in succession and without a misfire with this firing device. The temperature of plus 10 degrees F. is not believed to be a definite test of the mechanisms functioning in cold climates. However this temperature was the lowest obtainable locally and the expeditious nature of tests prevented more extensive testing in low temperatures.

(2) When removed from the heat chamber, the plastic grips on this device were blistered and warped out of shape. When tried, the trigger would not actuate the armature. The unit was then disassembled and carefully examined in order to

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determine the cause of the failure. When taken apart, it was observed that the trigger did not exert sufficient pressure on the armature so as to make it trip from one pole piece to the other. In view of the fact that this particular device was one of the three defective devices received and repaired by testing personnel, it is believed that the exposure to the high temperature did not cause the failure in operation. By using a screwdriver to trip the armature while the trigger was being squeezed, four electric squibs were fired satisfactorily, indicating that the electrical portion of the device was still functioning.

13. Test No. 7.

a. Purpose: To determine the effect of dry sand, wet sand and mud on the functioning of the subject firing mechanisms.

b. Method:

(1) A handful of dry sand was thrown against the side of the subject firing mechanism, also one handful against the trigger, while attached to the launcher M1. The plastic grip stocks were on the mechanism.

(2) Another of the subject mechanisms, attached to the launcher, was thoroughly wet and several handfuls of mud splashed against the openings around the trigger and the portions of the grips near the barrel.

(3) The mechanical operation was checked on both firing mechanisms.

c. Results:

(1) The dry sand had entered into the mechanism in sufficient quantities to prevent functioning of the device. The trigger would move slightly and attempts to fire an electric squib failed. An examination disclosed that a considerable amount of sand had lodged against the armature so as to prevent it from tripping. By shaking out the sand this device functioned properly.

(2) The device splashed with mud did not operate. By removing the grip stocks it was found that a large amount of

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mud had entered into the mechanism. Most of the mud was around the trigger in such a manner that it prevented the trigger from moving all the way back so as to trip the armature. Very little mud had entered into the space between the armature and the pole pieces. The device was dipped into water and the mud was easlily washed off. When this was done it functioned satisfactorily.

(3) It is believed that some means should be provided for preventing mud and dust from entering into the mechanism of the firing mechanism. Though apparently unaffected by water, it is further believed that if the mechanism was sealed, it would render more reliable operation under all conditions.

14. Test No. 8.

a. Purpose: To record the difference, if any, in the firing of the rocket launcher M-1 when using the magneto type firing mechanism and when using the battery method of firing.

b. Method:

By employment of both types of firing methods and recording any differences noted.

c. Results:

(1) In firing the launcher with the magneto type firing mechanism the "Trigger-pull" required is considerably more than is required in firing the battery type. The trigger-pull required to fire the battery type is approximately 5 pounds compared to over 12 pounds required for the magneto type. The trigger-pull was measured with a trigger-pull scale, that only recorded a pull up to twelve pounds. In using this scale to measure the pull required for the magneto type device, a pull of more than a full scale reading of 12 pounds was needed to actuate the armature.

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15. Test No. 9.

a. Purpose: To develop a method for testing the entire electrical circuit on the rocket launcher M-1.

b. Method: By a study of the present method of testing the electrical system on the rocket launcher M-1 and devising a method whereby the entire electrical system, from the power source to the contractor plunger, is tested.

c. Results:

(1) The present method of testing the electrical system is not considered adequate for the following reasons:

(a) The bulb mounted in the shoulder stock does not indicate that all the wiring used in firing the rocket is in working order. This light merely indicates to the firer that a circuit is completed from the batteries, through the trigger switch to the bulb. The wire leading from the bulb to the contactor plunger could be broken yet the firer has no means of checking this wire without disassembly of the contact box cover.

(b) The bulb being connected in parallel, causes an unnecessary drain on the batteries each time the launcher is fired.

(c) The loader has no means of detecting whether or not current is being applied to the contactor plunger because the indicating bulb is mounted on the opposite side of the shoulder stock. This is considered important, especially when batteries are used as the power source. During firing of the rocket launcher by the Test Section, several instances were experienced where a short circuit occurred in the trigger switch and was not detected by the firer. The loader inserted the rocket and when the safety lever was moved to the "fire" position, the rocket was discharged. The launcher happened to be aimed with sufficient elevation so that the rocket was projected a safe distance from the firer and the loader was also away from the rear of the launcher.

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(2) As a result of the above instances the following method of testing the electrical wiring on the launcher was developed and is being forwarded for consideration.

(a) Modification of the contact box cover by attaching a socket, bulb and guard as shown by Fig. 1 and Fig. 2, Appendix "E".

(b) Attaching a flat piece of metal to the contact plunger as shown in Fig. 3, Appendix "E".

(c) Removing the bulb mounted in the shoulder stock.

(3) The above modifications are simple and easy to incorporate into the launcher. This modification will provide:

(a) A method for testing the launcher wiring from the power source to the contact plunger.

(b) The bulb is removed from the circuit automatically when the lever is moved from the "Safe" to the "Fire" position.

(c) Both the firer and the loader can see the bulb and in case of a shorted trigger switch or the firer holding the trigger back, the loader can readily detect the presence of electric current on the contact plunger.

(4) The suggested method of testing the electrical system of the launcher was incorporated into a launcher used by the Test Section and has functioned satisfactorily. The modifications were made by using parts from a salvaged flashlight (TL-122) and do not materially increase the weight of the launcher. See Plates Numbers 4, 5 and 6 for views showing this method incorporated into the Launcher M-1.

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16. Test No. 10

a. Purpose: To determine what modifications are necessary in the subject firing mechanisms in order to eliminate the objectionable features found during tests.

b. Method: By a study of these objectionable features from a viewpoint of their elimination by minor modifications.

c. Results:

(1) Mechanical operation:

Examination of the defective firing mechanisms received indicated poor inspection. It is believed that these defects, mentioned in paragraph 8, can be eliminated without difficulty by proper inspection.

(2) Operation with sand or mud in the mechanism:

It was found that sand and mud could enter into the operating mechanism and prevent proper operation. (See Results of Test No. 7.) The sand entered the mechanism around the trigger and at points near the barrel where the grip stocks do not provide a tight fit. It is suggested that the trigger be housed in a soft flexible rubber housing (similar to that on the switch of the radio set SCR-536) and that the upper portions of the grip stocks, next to the barrel of the launcher have a closer fit.

(3) Grip stocks:

The grip stocks give off a very offensive odor. Though not affecting the mechanical operation or ruggedness of the firing mechanism the odor from these stocks may cause personnel using the weapon to harbor a dislike for it. The plastic material in the grip stocks also warped when exposed to a temperature range of 140 to 190 degrees F for 24 hours.

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(4) Rivets or bolts should be issued with each mechanism, for fastening it to the launcher M1, if issue is to be made for replacement of battery method now used in launchers by troops in the field.

(5) Though noticed in only one of the devices initially, the current generated while the trigger is being released is not desirable. A means of slowing up the return of the armature while the trigger is being released is desired. This would prevent the generation of sufficient current to fire a rocket when the trigger is released. Another officer, using one of the subject firing mechanisms to fire rockets at the Army Maneuvers stated that one or two of the rockets fired as the trigger was being released. Whether or not the rockets were fired by the current generated while the trigger was being released is difficult to determine, due to the number of hang-fires experienced while using the battery method.

VI DISCUSSION

17. A study of the results of tests may be divided into:

a. Favorable comments:

(1) Except for the defective mechanisms mentioned in paragraph 8, the subject items functioned satisfactorily and the operating principle is excellent.

(2) Water or moisture did not affect the functioning.

(3) Incorporation of the subject firing mechanisms into the launcher M1 is easily made and does not add to the weight of the launcher.

(4) Because of the fact that an actual movement of the trigger mechanism is needed in order to generate the firing potential, this method of firing the antitank rocket is considered safer than the method using dry batteries.

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(5) This firing principle eliminates the need of dry batteries, which are of a special type (BA-42) not common in equipment used by forward Infantry troops. The elimination of dry batteries also helps to relieve the problem now encountered in supplying fresh batteries to troops in distant places.

(6) One of the subject items was actuated 1,300 times and each time the current generated was sufficient to cause a flashlight bulb (2.5 volt LM-35-A) to burn momentarily.

(7) The suggested method of testing the electrical circuits on the rocket launcher (see paragraph 15) is considered superior to the method now being used. This suggested method, in addition to testing the entire wiring used to fire the rocket, also offers some protection to the personnel using the weapon.

(8) Though a limited number of antitank rockets were fired during the test, the subject firing mechanisms functioned satisfactorily on those fired.

b. Unfavorable comments:

(1) The "trigger-pull" required to actuate the firing mechanism is considerably greater than that required for firing the battery equipped rocket launcher M1.

(2) Three of the six subject mechanisms were found to be defective when received.

(3) Sand and mud can enter the mechanisms in sufficient quantities to prevent operation of the subject firing devices. This may be washed out without harm to the device.

(4) The plastic grip stocks furnished with the subject mechanisms will not stand high temperatures (140 to 190 degrees F) without warping out of shape.

(5) The plastic grip stocks give off a very offensive odor which may affect attitude of the personnel using the weapon.

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VII CONCLUSIONS

19. The Test Section concludes:

a. That the Mechanism, electrical firing T6 in its present form, is unsuitable for Infantry use.

b. That if modified as shown in paragraph 16 it would be suitable for Infantry use.

c. That mechanisms of this type are highly desirable for use in rocket launchers M1 now in the field and those of future manufacture.

d. That the new method of testing the firing circuits on the rocket launcher M1 possesses sufficient merit to receive consideration for incorporation into rocket launchers now in the field and those of future manufacture.

H. G. SYDENHAM,
Colonel, Infantry,
Chief of Test Section.

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IB-471.6 1st Wrap. Ind.
(5-3-43)

THE INFANTRY BOARD, Fort Benning, Georgia,
May 11, 1943.

To: Chief of Test Section, The Infantry Board.

1. Since material has already been received, six Launchers, Rocket, AT, M1 should be modified in accordance with the inclosed drawing.

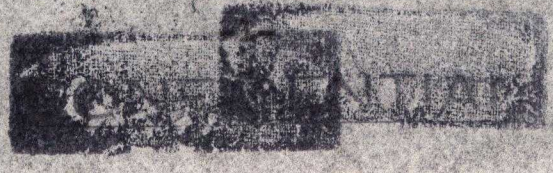
2. Preliminary tests may be initiated but detailed tests should await receipt of directive from Requirements Section, Army Ground Forces.

For the President:

NED BLAIR,
Lt. Colonel, Infantry,
Recorder.

Incl.
Let. SPOTS fr.
OCO, 5/3/43, to
OO, Ft. Benning, Ga.,
w/ 3 Incls.

APPENDIX "A"



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Miller/mdl
Ext. 5845

WAR DEPARTMENT
Office of the Chief of Ordnance
Washington, D. C.

Attention of
SPOTS

May 3, 1943

Subject: Mechanism, Electrical Firing, T6.

To: Ordnance Officer,
Fort Benning, Georgia.

1. There are being shipped to your station six (6) Mechanisms, Electrical Firing, T6 for Launchers, Rocket, AT, 2.36", M1. It is requested that these mechanisms be furnished the Infantry Board for service test. The details for this test will be furnished the Infantry Board through Headquarters, Army Ground Forces; however, there is inclosed herewith one copy of Drawing #D73947, which gives information on the proper assembly of this mechanism to the Launcher, Rocket, AT, 2.36", M1.

By order of the Chief of Ordnance:

Rene' R. Studler
Colonel, Ord. Dept.
Assistant

3 Incls-
Incl 1 - S.O. #10-1423, in dupl.
Incl 2 - Drwg. D73947
Incl 3 - Information form.

COPY

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APPENDIX "B"

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WAR DEPARTMENT
Office of Chief of Ordnance
Washington, D.C.

Miller/mdl

No. 10-1423
Date May 3, 1943

SHIPPING ORDER

To: Mr. J. A. Colburn
Ordnance Property Officer
Washington, D. C.

Ship to: Ordnance Officer
Fort Benning, Georgia

Routing: Express Basis:

QUANTITY	ITEM
Six (6)	Mechanisms, Electrical Firing, T6

NOTE: For test by Infantry Board.

Cost of transportation chargeable to:

By order of the Chief of Ordnance:

Henry Erwin
Lt. Colonel,
Ordnance Dept.,
Assistant.

COPY

APPENDIX "B"

DECLASSIFIED
Authority NND735022

No. _____

Date _____

INFORMATION TO BE FURNISHED FOR TESTING OF SMALL ARMS ITEMS BY VARIOUS SERVICE BOARDS

1. Item to be tested: Mechanism, Electrical Firing, T6
By Infantry and Tank Destroyer Boards.

2. Estimated date of shipment: April 30, 1943

3. To be shipped from: Office, Chief of Ordnance, Washington, D.C.

4. Pertinent data that is to be secured from the test and any information that should be included in the directive:

It is requested that the Mechanisms, Electrical Firing, T6 be thoroughly tested in the following phases:

a. To determine the feasibility of the use of a mechanism of this type on a Field Service modification to all launchers now in the field.

b. To determine the reliability and actual functioning of this mechanism under severe field conditions. These tests should include water, dust, and mud testing.

c. To determine the desirability of the use of a mechanism of this type on both the old launchers in the field and the incorporation of this device in future manufacture.

5. Disposition of item upon completion of test: At the discretion of the Board; however, it is requested that any mechanism that develops serious defects be returned immediately to this office so that steps may be taken to correct the design.

6. Date Report as desired:

a. Monthly report _____

b. Upon completion x

c. Final report not later than as soon as possible.

7. Any remarks: It is requested that this test & the report of test be expedited. There have been furnished drawings for the proper assembly of this device to the launchers. It is desirable to point out at this time that this device will add no weight to the launcher since it replaces the trigger grip, and the old batteries are to be removed.

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[redacted]

GROUND REQUIREMENTS SECTION
HEADQUARTERS
ARMY GROUND FORCES
ARMY WAR COLLEGE
WASHINGTON, D.C.

471.6/9(C)-
GNRGT-11/41924

May 26, 1943.

SUBJECT: Mechanisms, Electrical Firing, T6 for Rocket Launcher M-1.

TO: President, Infantry Board,
Fort Benning, Georgia.

1. There has been shipped to the Infantry Board six (6) Mechanisms, Electrical Firing, T6 for Rocket Launcher M-1.

2. Upon receipt of the subject firing mechanisms it is desired that they be tested to determine the following:

a. Feasibility of field modification.

b. Practicability of the mechanism.

c. Reliability and functioning under field conditions, including water, dust and mud.

d. Desirability of the use of subject mechanism on old launchers in the field and those of future manufacture.

3. Inclosed test form and drawing are for your information and guidance.

For the Chief, Ground Requirements Section:

(Signed) W. F. Dean,
Brig. Gen., G.S.C.,
Ground Requirements Section.

2 Incls.
Incl. #1. Test Form.
Incl. #2. Drawing.

COPY

[redacted]

APPENDIX "C"

DECLASSIFIED
Authority NND735022

[redacted]

No. _____

Date _____

INFORMATION TO BE FURNISHED FOR TESTING OF SMALL ARMS ITEMS BY VARIOUS SERVICE BOARDS

1. Item to be tested: Mechanism, Electrical Firing, T6 _____ By Infantry and Tank Destroyer Boards.

2. Estimated date of shipment: April 30, 1943

3. To be shipped from: Office, Chief of Ordnance, Washington, D. C.

4. Pertinent data that is to be secured from the test and any information that should be included in the directive:

It is requested that the Mechanisms, Electrical Firing, T6 be thoroughly tested in the following phases:

a. To determine the feasibility of the use of a mechanism of this type on a Field Service modification to all launchers now in the field.

b. To determine the reliability and actual functioning of this mechanism under severe field conditions. These tests should include water, dust, and mud testing.

c. To determine the desirability of the use of a mechanism of this type on both the old launchers in the field and the incorporation of this device in future manufacture.

5. Disposition of item upon completion of test: At the discretion of the Board; however, it is requested that any mechanism that develops serious defects be returned immediately to this office so that steps may be taken to correct the design.

6. Date Report is desired:

a. Monthly report _____

b. Upon completion X

Incl. #1

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6. Final report not later than as soon as possible.

7. Any remarks: It is requested that this test and the report of test be expedited. There have been furnished drawings for the proper assembly of this device to the launchers. It is desirable to point out at this time that this device will add no weight to the launcher since it replaces the trigger grip, and the old batteries are to be removed.

Incl. #1

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IB-471.6 1st Ind.
(5-26-43)
The Infantry Board, Fort Benning, Georgia, June 1, 1943.

To: Chief of Test Section, The Infantry Board, Fort Benning, Georgia.

1. It is requested that the necessary tests be conducted to determine the points listed in paragraph 2 of basic letter.

2. It is further requested that, in conjunction with tests of subject mechanisms, a satisfactory method of testing the entire electrical firing circuit, (with subject mechanisms installed) be developed. If this development results in a suitable field modification, drawings similar to Inclosure #2 should be prepared, showing method of field installation in launchers already manufactured and launchers of future manufacture.

For the President:

NED BLAIR,
Lt. Col., Infantry,
Recorder.

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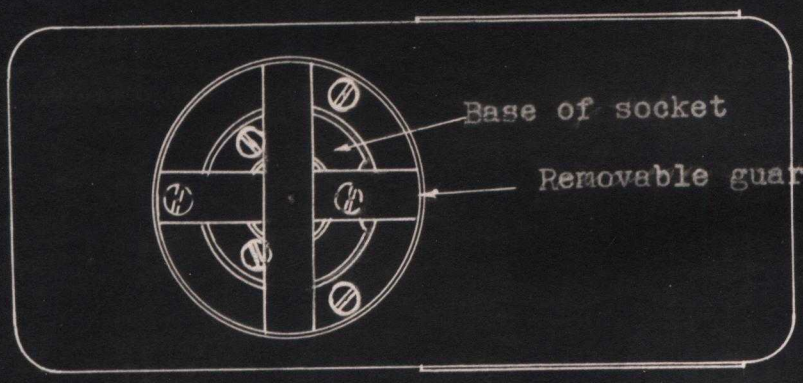

Fig. 1.
Elevation showing method of attaching guard and socket for flashlight bulb LM-19

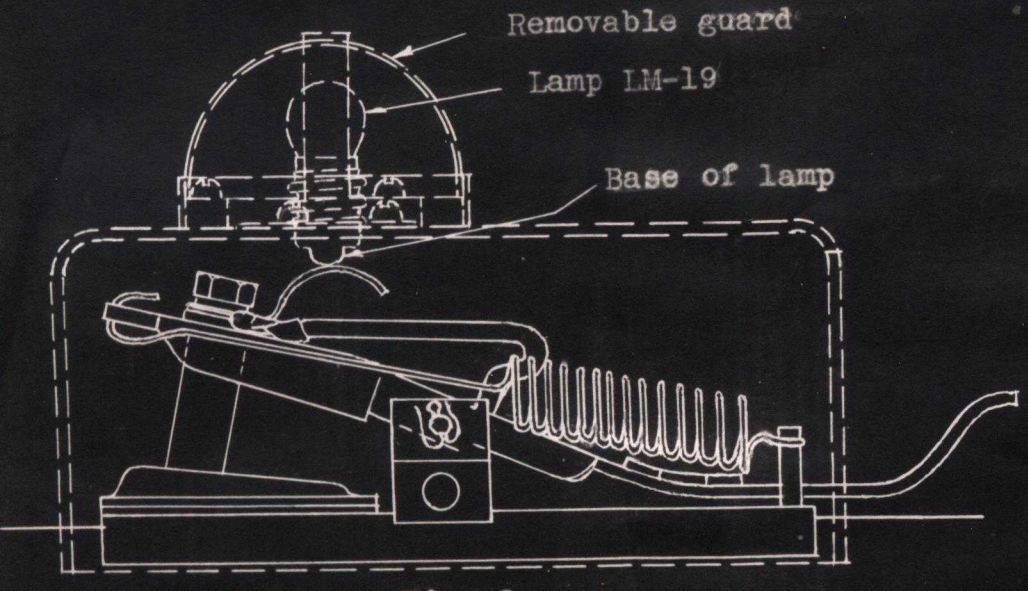

Fig. 2.
Cross Section of contactor mechanism with lever in "Safe" position.

Modification of Circuit Testing Light on the Antitank Rocket Launcher M-1

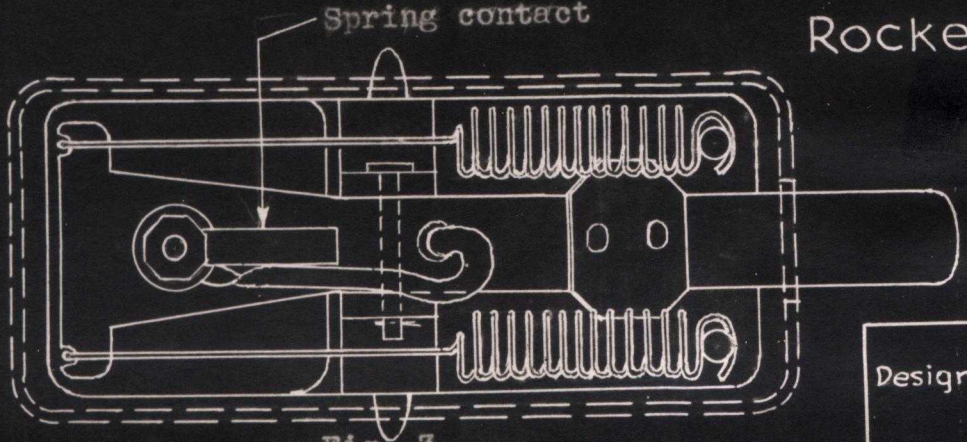

Fig. 3.
Elevation of contactor mechanism showing position of the spring contact.

Designed by L. MITZEN MAJ. INF.

Drawn by R.E. DANDO

MAY 30, 1943

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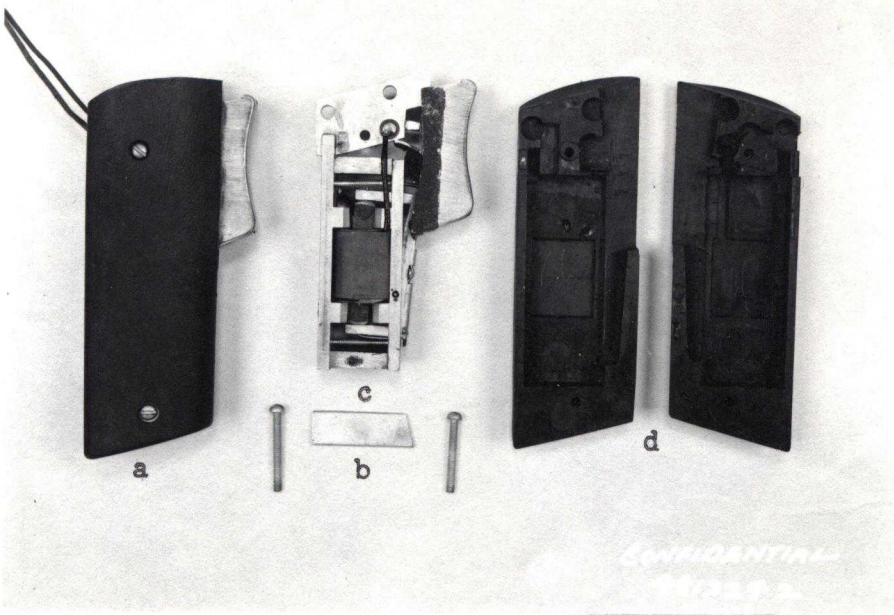

View of subject mechanism showing:

a. Complete mechanism assembled. Note the two wires were used for firing squibs and are not issued with the device.

b. Cutting template and screws used for holding grip stocks together.

c. Side view of mechanism with grip stocks.

d. Grip stocks.

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PLATE 1

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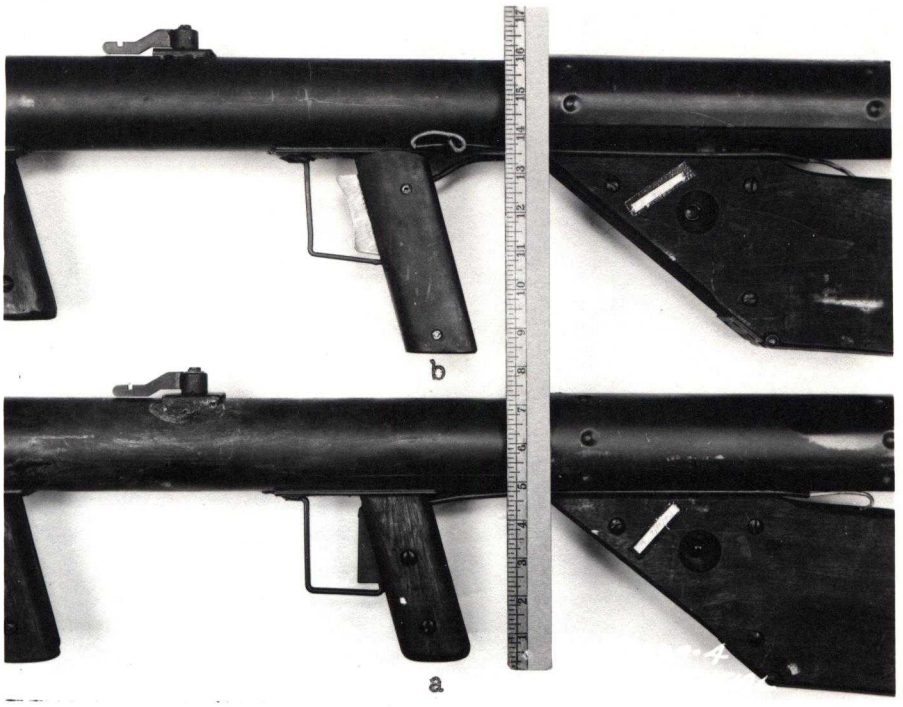

View showing comparative size of:

a. Rear hand grip stock on battery type launcher M1.

b. Subject mechanism installed on the launcher M1.

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PLATE 2

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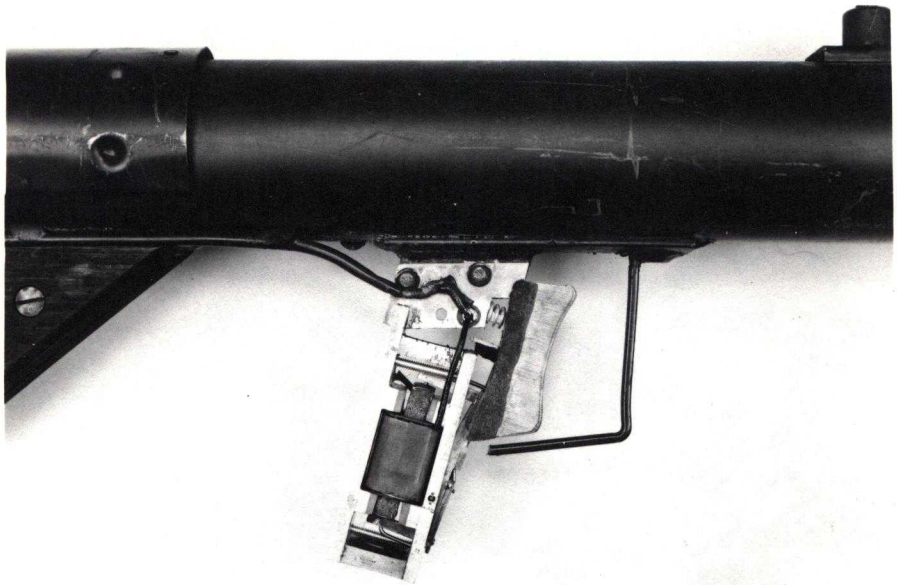

View of subject mechanism, with hand grip stocks removed, mounted on the launcher M1.

Note the wire lead soldered to the wire leading from the coil. Just above the wire are the two rivets that hold the mechanism to the launcher.

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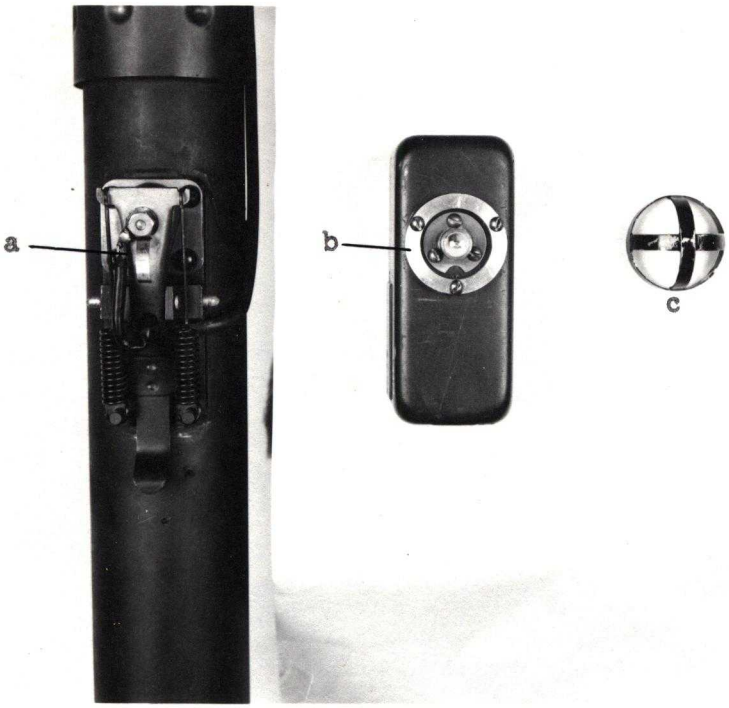

View showing modification of testing method on launcher M1.

a. Small spring contact attached to top of contact plunger.

b. Socket, bulb and guard ring attached to cover.

c. Removable guard.

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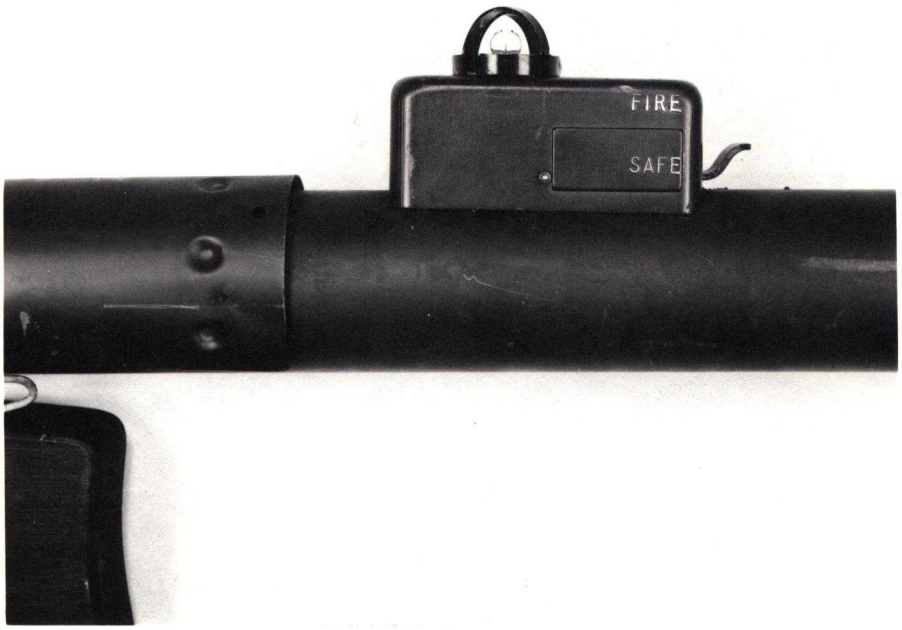

View showing contact box cover modified by incorporation of a light bulb, socket bulb and guard, while in position on the launcher M1.

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Inside view of contact box cover showing base of bulb and screws out flush with inner surface of the box.

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